Rare Case of Gastrointestinal Stromal Tumor Presenting with Scrotal Metastasis

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Abstract While gastrointestinal stromal tumors frequently metastasize, the scrotum is an extremely rare site of involvement. This case is of a 48-year-old male who, having undergone debulking surgery for metastatic gastrointestinal stromal tumor (GIST) of the small intestine 2 years ago, presented with bilateral scrotal swelling. Ultrasound showed hypoechoic mass lesions surrounding the testis and epididymis bilaterally with extension into the spermatic cord and biopsy established a diagnosis of metastatic GIST of the scrotum. As the processus vaginalis is an extension of the peritoneal cavity, we postulate that it may serve a route of spread in malignancies that involve the peritoneal cavity, as in this case.

Keywords Gastrointestinal stromal tumor · Scrotal · Metastasis · Extra testicular

Introduction

Metastases are an uncommon cause for extra-testicular masses and a gastrointestinal stromal tumor (GIST) of the small intestine appears to be an extremely rare primary neoplasm in such cases. Through this case, we attempt to describe the

processus vaginalis as an unusual route of spread, of malignancies in the peritoneal cavity, to the scrotum.

Case Report

A 48-year-old man presented to the out-patient department with bilateral painless scrotal swelling for 2 weeks. The swelling was gradual in onset, and there was no associated fever. He had undergone debulking surgery for metastatic GIST of the small bowel 2 years ago and was on imatinib treatment. Physical examination revealed firm, nodular masses in both scrotal sacs, and the testes were not separately palpable. The swelling appeared to be extending above the root of the scrotum, and transillumination test was negative.

Ultrasound of the scrotum showed hypoechoic lesions surrounding the testes and epididymis bilaterally (Figs. 1 and 2). These were extending into the spermatic cord at the root of the scrotum and showed internal vascularity. No focal lesions were however noted in the testes or epididymis. Abdominal ultrasound revealed multiple targetoid lesions in the liver and multiple small peritoneal nodules. To characterize the lesions in the scrotum, biopsy was performed which showed spindle-shaped cells arranged in fascicles. Immunohistochemistry of the specimen showed CD117 positive cells. A diagnosis of metastatic GIST of the scrotum was made. The patient's dose of imatinib was increased. On subsequent follow-up, he reported an improvement in general well-being, and ultrasound showed a decrease in the size of the abdominal and scrotal masses. He is currently maintained on the escalated dose of imatinib and is being managed on an outpatient basis.

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Fig. 1 Ultrasound of the right side of scrotum showing lobulated hypoechoic lesions (arrow heads) around the right testis and head of epididymis

Discussion

Metastasis from gastrointestinal stromal tumor (GIST) is common and patients may present with metastatic deposit as the primary presentation. The most common sites of metastasis are the liver and peritoneum, and extra-abdominal metastasis is very rare. These uncommon sites of metastases may be seen with advanced disease, and include the central nervous system, lung, pleura, bone and subcutaneous tissues [1].

Metastases constitute a very small percentage of extra-testicular tumors of the scrotum. Most commonly they originate from testicular, renal, prostate and gastrointestinal primary tumors [2]. Postulated mechanisms of spread include lymphatic spread, retrograde extension through the vas deferens or via retrograde venous embolism [3, 4]. The processus

Fig. 2 Ultrasound of the left side of scrotal sac showing hypoechoic lesions (arrow heads) around the left testis

vaginalis may also be a route of metastasis. Primary mesothelioma of the peritoneum has been reported to spread to the scrotum via a patent processus vaginalis [5]. Likewise, gastrointestinal primary tumors with peritoneal involvement have been reported to metastasize to the spermatic cord or scrotum, and this may occur or have occurred through the processus vaginalis [6].

Thus far, only three cases of GIST with scrotal metastasis have been described and these also manifested with tumor nodules in the tunica vaginalis and spermatic cord [7, 8]. In our case, the presence of bilateral extra-testicular scrotal masses with deposits in the inguinal canal suggests the possibility of spread of the tumor through the processus vaginalis.

Conclusion

Our case demonstrates that malignancies with peritoneal involvement may present with extra-testicular metastasis. Clinicians and radiologists must therefore be aware that extra-testicular metastases may be an indicator of widespread peritoneal involvement, and that the processus vaginalis is a possible route of spread in such cases.

Conflict of Interest Richard Thomas and Smrita Swamy declare that they have no conflict of interest.

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